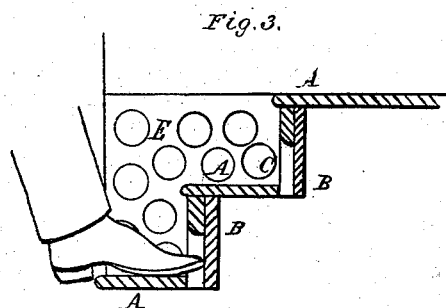
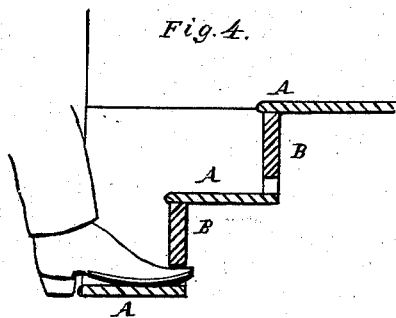
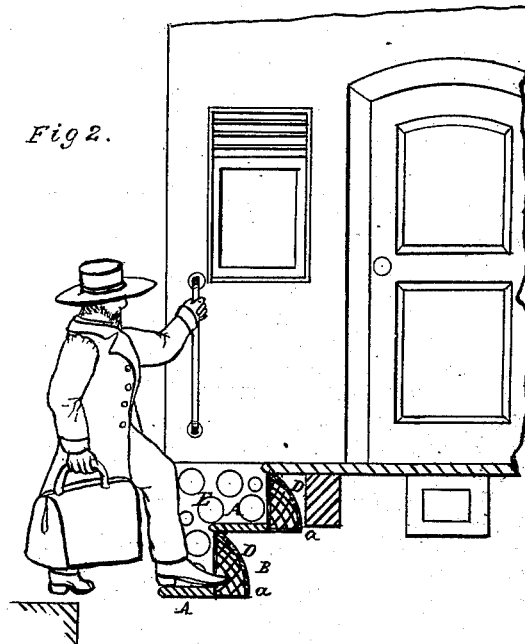
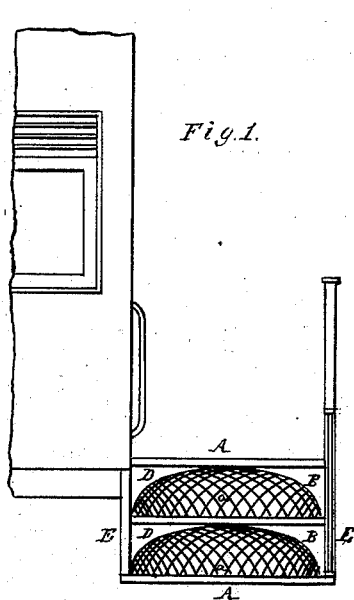


C. L. HEYWOOD.  
Car-Step.

No. 216,405.

Patented June 10, 1879.



Witnesses.

Francis S. Dyer  
Abraham Firth

Inventor.

Charles L. Heywood

# UNITED STATES PATENT OFFICE

CHARLES L. HEYWOOD, OF BELMONT, MASSACHUSETTS.

## IMPROVEMENT IN CAR-STEPS.

Specification forming part of Letters Patent No. **216,405**, dated June 10, 1879; application filed December 24, 1878.

*To all whom it may concern:*

Be it known that I, CHARLES L. HEYWOOD, of Belmont, county of Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Steps for Cars, which improvements are fully set forth in the annexed specification and accompanying drawings, in which—

Figure 1 represents a view of the car-step with my improvements. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a modification of the invention. Fig. 4 is a section of a step as constructed before my invention.

In steps for cars heretofore the bearing for the foot of the passenger is short or narrow, and a low opening above the surface is made in the back of the step; and the passenger, in order to obtain a firm foot-hold, puts his foot partly through the narrow opening in the back, as shown in Fig. 4. Frequently his foot becomes fastened therein, in consequence of which the passenger is liable to lose his balance and to be thrown off the car and injured.

The object of this invention is to construct the car-step with a back, preventing the passenger's foot from passing through and becoming fastened, while at the same time said back is made to allow for taking a full foot-hold, and so that the foot can rise from the step uninterrupted.

In the drawings, the letter A represents the car-step, and B its back. It may be made of wood entirely, as shown in Fig. 3, with a solid back, as this method of construction will be found convenient in changing steps already in use, by cutting out a large opening in the rear of the old back and placing behind it a new one; but I prefer in most cases to furnish an entirely new back instead of the old, which new back I construct of metal, perforated or with open work, and still be of proper strength and durability.

The object of having said back perforated is

to allow the air to pass through, and lessen the resistance against the side of the car in case of stormy weather; also to allow the snow to pass off the step more readily.

The sides E E of the step are made with perforations through them, to allow the air to pass and reduce its resistance in the motion of the car.

Figs. 1 and 2 show more clearly the construction of my new back of metal. It may be made entirely of cast-iron, with suitable small perforations through it, or it may be of suitable wire net-work D, as shown, or partly of the one and partly the other, as may be most convenient to construct.

In all cases it is made to curve rearward, and most prominently at the central portion of the step pocket-shaped, as shown at *a*, so that plentiful room is allowed to place the foot with a full bearing upon the step.

Its perforations are made too small for the foot to enter, and its top is curved forward to guide the foot in raising with ease over the step above it, and thereby enabling the passenger to mount the step with perfect safety.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a car-step, of an open back to allow more foot-hold, and a guard to prevent the foot from being caught in the opening, substantially as described.

2. The combination, with a car-step, of an open perforated guard, constructed substantially as shown, so as to prevent the foot passing through the steps, and to act as a guide in raising it to the next step, as herein shown and described.

In witness whereof I hereunto set my hand this 10th day of December, 1878.

CHARLES L. HEYWOOD.

In presence of—

FRANCIS S. DYER,  
R. BOECKLEN.